

Amendments to the Claims:

1. – 17. (Canceled).

18. (New) An amplifier characterized by gain and output power comprising:

at least one gain medium;

at least one pump supplying optical power into said gain medium;

a controller controlling said gain and said output power of said amplifier, said controller including a signal compression circuit to cover a wide dynamic range for optical input and output signals, so that resolution for at least one optical signal below -25dBm level is better than resolution for at least one optical signal above -25dBm level.

19. (New) An amplifier characterized by gain and output power comprising:

at least one gain medium including rare earth-doped fiber;

at least one pump supplying optical power into said gain medium;

a controller controlling said gain and said output power of said amplifier, said controller including a signal compression circuit to cover a wide dynamic range for optical input and output signals, so that resolution for at least one optical signal below -25dBm level is better than resolution for at least one optical signal above -25dBm level.